APPENDIX E

DATA STANDARDIZATION

A. PURPOSE

The purpose of this Appendix-is to provide information on standardizing DoD data. It describes how data modeling is the key aspect of the DoD Data Administration Program that derives data for standardization. This Appendix further provides information for standardizing DoD data such as prime words, data elements, class words, and generic elements.

B. DATA STANDARDIZATION

1. Data standardization is achieved by logically identifying, grouping, and classifying data.

a. The DoD Data Model is a logical representation of DoD data and how it is categorized based upon information requirements. Prime words and data elements are derived from the logical grouping of data in either the DoD Data Model, or the Functional Area or Component Data Models. The purpose of this logical grouping is to define, name, and identify characteristics of data to eliminate redundancy and facilitate common use and understanding.

b. Once data requirements are identified, they are classified according to like structures and domains. The purpose of this logical grouping is to identify standard rules for creating, sharing, maintaining, manipulating, and representing like data. Class words and generic elements facilitate this physical grouping of data.

C. ROLE OF THE DoD DATA MODEL

1. Without an approved DoD Data Model, DoD standard data elements and their metadata cannot exist. As Functional Area and Component data models are developed and approved, they are used to extend the DoD Data Model. This process enables the evolution of the DoD Data Model to meet changing DoD mission and functional requirements.

2. The DoD Data Model shall be used to produce standard data and data structures (i. e., data entities, attributes, prime words, and data elements).

a. Approved data entities will yield standard prime words with assigned data stewards.

b. The attributes of approved data entities will produce candidate standard data elements for approval via the “Data Element Standardization

Procedures, ” (reference (f)).

3. The strategic level DoD Data Model as presented in the DoD Enterprise Model (reference (k)) can be used as the “blueprint” for transition from the “As Is” to the “To Be” DoD Data Model through a series of target data models which support a data management strategy for the Department of Defense.

D. PRIME WORDS

1. Prime words are centrally controlled and maintained by the DoD DAd. Prime words are the names of data entities in the DoD Data Model or derived from them. New prime words are approved based on the extension of the DoD Data Model.

a. Any person, either within the Department of Defense or representing a DoD organization, may propose to extend or” update the DoD Data Model. The originator prepares a proposal package consisting of a logical, fully attributed, normalized, data model that depicts data entities, their attributes, and relationships. The originator submits the proposal package to their respective FDAd or CDAd.

b. The FDAd or CDAd conducts a preliminary review of the proposal package to ensure adherence to mandatory technical and functional requirements and to reconcile developmental data entities and attributes with the current DoD Data Mode}. Upon completion of the preliminary review, the FDAd or CDAd will submit the package for informal review to the FDAd designated as the data steward, and to the DoD DAd.

c. The FDAd, designated as the data steward, with guidance from the DoD DAd, will conduct an informal review upon receipt of the proposal package. The FDAd and the DoD DAd will coordinate and perform concurrent functional and technical reviews. The FDAd will track the status of the proposal and keep the submitting FDAd or CDAd informed of progress and results. The FDAd should coordinate with their functional area experts, including FAPMs, OSD PSAS, and FIM to ensure that their requirements are fully represented. The FDAd also is encouraged to discuss proposals with functional counterparts within Components, CDAds, the originator, and other FDAds. For accepted proposals, the FDAd or CDAd designates the accepted data entities as candidate or modified prime words via the DDRS and forwards the proposal package to the DoD DAd for formal approval.

d. The formal approval process consists of a technical and functional review and final approval. The purpose of the technical review is to ensure that data entities and attributes adhere to technical standards. The purpose of the functional review is to ensure that data entities and attributes are represented consistently, are commonly understood, and support DoD cross-functionally. The final approval consists of technical and functional approvals based upon the

technical and functional reviews and, if needed, mediation. The DAPMO technically approves, the FDAds functionally approve, and the DoD DAd mediates.

2. Prime words and data stewards are determined for each approved data entity and stored in the DDRS to allow for data element standardization. Data elements are derived from approved data entity attributes and are approved via the "DoD Data Element Standardization Procedures, " (reference (f)).

E. CLASS WORDS

1. A class word designates the category of data into which a data element fits. It establishes the general structure and format of data in the domain for that data element. Class words are reserved words that are used to categorize the data at its highest level. Approved DoD standard class words are recorded in the DDRS. They are centrally controlled, and maintained by the DoD DAd.

2. All data elements are required to fit into a category. If a new data element does not fit into a category then a proposal may be made to create a new category of data (class word). Proposals for new class words are submitted via an FDAd or CDAd to the DoD DAd. The DoD DAd approves new class words base upon recommendations from FDAds and DAPMO.

F. GENERIC ELEMENTS

1. A generic element is the part of a data element that establishes a structure and limits the allowable range of values of a data element. A generic element has no functional or application context other than to define a general class of data and to establish groups of data elements within the same class that have the same structure and related domains.

2. Generic elements are represented in the DoD Data Model as attributes that are used to define two or more different data entities (e.g., color name). When developing generic elements, it is important to analyze them via the data modeling process to ensure that it is not actually an attributive entity that the Department of Defense would like to keep information about (e.g., security classification code).

3. The generic element consists of a class word and, if necessary, modifiers that are derived from the attribute in the DoD Data Model. To develop generic elements:

a. First, categorize the data element into a general class (class word).

b. Second, sub-categorize the data elements within each class based on like metadata attributes.

4. Generic elements, like data elements, are developed and approved in accordance with the "DoD Data Element Standardization Procedures, " (reference (f)).

G. DATA ELEMENTS

1. A data element is a basic unit of information having a meaning and subcategories (data items) of distinct units and value. Through its name and definition, a data element conveys a single informational concept.

2. All attributes of approved data entities in the DoD Data Model will become standard data elements. As new information requirements are identified for approved prime words, additional data elements are developed and submitted for approval via the "Data Element Standardization Procedures, " (reference (f)). Such data elements may not have been approved at the time the data entity was approved; therefore, as these new data elements are approved they are reflected in the DoD Data Model as additions to a data entity.

3. All data elements are approved and documented in accordance with the "DoD Data Element Standardization Procedures, " (reference (f)).

a. Any person, either within the Department of Defense or representing a DoD organization, may propose a data element for standardization to their FDAd or CDAd .

b. The FDAd or CDAd conducts a preliminary review of the data element to ensure adherence to mandatory technical and functional requirements. Upon completion of the preliminary review, the FDAd or CDAd will submit the data element for informal review to the FDAd designated as the data steward and to the DoD DAd.

c. The FDAd, designated as the data steward, with guidance from the DoD DAd, will conduct an informal review upon receipt of the data element. The FDAd and the DoD DAd will coordinate and perform concurrent functional and technical reviews. The FDAd will track the status of the data element and keep the submitting FDAd or CDAd informed of progress and results. The FDAd should coordinate with their functional area experts, including FAPMs, OSD PSAS, and FIMs to ensure that they are fully represented. The FDAd is also encouraged to discuss data elements with functional counterparts within Components, CDAds, the originator, and other FDAds. Data elements that meet the criteria are submitted by the FDAd or CDAd as a candidate or modified standard data element via the DDRS for formal approval.

d. The formal approval process consists of a technical and functional review and final approval. The purpose of the technical review is to ensure that the candidate standard data element conforms to DoD Data Administration policy

and does not conflict with existing standard data elements. The purpose of the functional review is to validate the candidate data element metadata attributes to ensure that the data element is functionally accurate and complete, and can be used throughout the Department of Defense. The final approval consists of technical and functional approvals based upon the technical and functional reviews and, if needed, mediation. The DAPMO technically approves, the FDAd functionally approves, and the DoD DAd mediates.

4. Data elements are derived from data entities and their attributes identified in logical data models. Each data element represents an entity-attribute combination.

5. The data element name is created by combining the data entity name (prime word) with a data entity attribute name, including class word, from the data model.

6. During data element standardization, data elements are further grouped within a class and categorized in a group of generic elements based upon the same structures and related domains. A data element must be associated with an approved generic element.